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10/506,861

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EXAMINER

FOX, CHARLES A

ART UNIT

PAPER NUMBER

3652

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | | |
|------------------------------|--------------------------------------|----------------------------------|--|
| Office Action Summary | Application No. 10/506,861 | Applicant(s) WU ET AL. | |
| | Examiner Charles A. Fox | Art Unit 3652 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-13 and 15-18 is/are rejected.
- 7) ☒ Claim(s) 6 and 14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>20040902</u> . | 6) <input type="checkbox"/> Other: ____ |

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim. Claim 17 is directed to a sealable SMIF pod, but the majority of the claim is directed to a system employing the pod. Thus it is indefinite as to the structure of the pod is effected by the limitations of the system. In the rejection of claim 17 below the structure of the pod are the only limitations which are treated as the remainder of the claims are directed to an intended use of the pod.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Walker et al. Regarding claim 1 Walker et al. US 5,674,039 disclose a substrate transfer system comprising:

at least two SMIF pod openers (56,58);

at least one robotic arm mechanism (180) for retrieving a substrate from an opened pod and moving into a process device and then back to said pod;

wherein said arm mechanism grips the substrate during movement thereof;

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wherein a control system coordinates the automatic transfer of substrates between the opened pods and the process device.

Regarding claim 10 Walker et al. also disclose a reorienter for use in automatically exchanging substrates between a carrier in the reorienter and with a pod located within a load port.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker et al. as applied to claim 1 above, and further in view of Kawasaki Steel. Walker et al. teaches the limitations of claim 1 as above, they do not teach an identification system located on the cassette. Kawasaki Steel JP 06013453 teaches a cassette (1) with identification marks (3) that allow the contents of a cassette to be reread by a reader, said identification marks holes disposed in a block (2) attached to said cassette wherein light is passed through the blocks to form a code and reader for determining the contents of the cassette. It would have been obvious to one of ordinary skill in the art, at the time of invention to provide the pod taught by walker et al. with a reading system as taught by Kawasaki steel in order to automatically read the contents of a pod as it is being handled.

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Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walker et al. as applied to claim 1 above, and further in view of Mizosaki. Walker et al. teach the limitations of claim 1 as above, they do not teach a mapping device located upon the effector. Mizosaki US 5,695,562 teaches an end effector (41) for moving a substrate wherein said effector has a mapping device (42,43) mounted thereon to determine the location of a substrate to be picked up. It would have been obvious to one of ordinary skill in the art, at the time of invention to provide the effector taught by Walker et al. with a mapping device as taught by Mizosaki in order to accurately determine the presence and position of a wafer while moving the effector into a pick up position, thereby increasing the effectiveness of the substrate transfer.

Claims 11-13,15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker et al. as applied to claim 10 above, and further in view of Suzuki. Walker et al. teach the limitations of claim 1 as above, they further teach a clamp for holding the bottom of the pod during opening thereof, they do not teach changing the orientation of the substrates from vertical to horizontal. Suzuki US 5,409,348 teaches a substrate reorientation device comprising:

a tilt station that received an open container of substrates in a vertical orientation;
said station adapted to reorient the container such that the substrates are in a horizontal orientation whereby they can be picked up by an effector;
wherein said substrates are pivoted about an axis that is parallel with a plane of the substrates via a rotary table. It would have been obvious to one of ordinary skill in the art, at the time of invention to provide the device taught by Walker et al. with a reorienter

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as taught by Suzuki in order to allow the device to handle substrates that are transported in a vertical orientation.

Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker et al. as applied to claim 1 above, and further in view of Woodruff et al. Walker et al. teaches the limitations of claim 1 as above, they do not teach gripping the edge of the substrate. Woodruff et al. US 2003/0085582 teaches an end effector for moving substrates comprising:

- a U-shaped support frame (312a,b);

- end supports (320a,b) for holding the edge of a substrate;

- a movable slide (352) for urging the substrate against the end supports such that a substrate is clamped by its edges. It would have been obvious to one of ordinary skill in the art, at the time of invention to provide the device taught by Walker et al. with an effector as taught by Woodruff et al. in order to ensure that the substrate when picked up is held tightly and always located in a particular relationship to the end effector.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walker et al. and Woodruff et al. as applied to claim 7 above, and further in view of Coomer et al. Walker et al. and Woodruff et al. teach the limitations of claim 7 as above, they do not teach a vacuum chuck opposite the distal ends of the end effector. Coomer et al. US 6,612,590 teaches an end effector with a vacuum chuck section that interfaces with a substrate along an edge of the substrate. It would have been obvious to one of ordinary skill in the art, at the time of invention to provide the effector taught by Walker et al. with

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an vacuum chuck as taught by Coomer et al. that operates in an exclusion zone of the substrate in order to keep from damaging the substrate during handling.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walker et al. and woodruff et al. as applied to claim 5 above, and further in view of Coomer et al. Walker et al. and Woodruff et al. teach the limitations of claim 5 as above, they do not teach side clamps for the substrate. Coomer et al. US 2002/0064450 teaches an end effector that has side clamps (302) that hold a substrate from the side such that it may not move in a lateral direction relative to the effector. It would have been obvious to one of ordinary skill in the art, at the time of invention to provide the device taught by Walker et al. with clamps as taught by Coomer et al. '450 in order to maintain the substrate in a particular position and orientation relative to the effector.

Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker et al. in view of Kawasaki Steel. Walker et al. teaches a SMIF pod comprising:

- a base that holds a substrate having a particular configuration of substrate;

- a cover which mates with said base, said cover latchable and unlatchable with said base. They do not teach providing an encoder on the substrate holder. Kawasaki Steel teaches a holder for substrates wherein the holder has an encoder comprising blocks with holes therein for allowing a light to pass, such that information about the holder and any substrates therein can be ascertained during movement of the holder. It would have been obvious to one of ordinary skill in the art, at the time of invention to provide the device taught by Walker et al. with an encoding system as taught by

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Kawasaki steel in order to accurately determine the contents of a substrate holder in real time while the holder is being handled.

Allowable Subject Matter

Claims 6 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Regarding claim 6 the structure of the end effector in relation to the pierced block is not taught or suggested by the cited prior art when taken in conjunction with the claims from which it depends. Regarding claim 14 the closest prior art of Suzuki does not teach registration tags on the pods for being read by a probe on the box opening station.


The prior art made of record and not relied upon, but considered pertinent to applicant's disclosure is: Powers et al. 1993 and Rosenquist et al. 2001.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles A. Fox whose telephone number is 571-272-6923. The examiner can normally be reached between 7:00-4:00 Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen D. Lillis can be reached at 571-272-6928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

 12-13-06
Charles A. Fox
Examiner
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